

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Karsten M. KRAGH et al.

Title: NON-MALTOGENIC EXOAMYLASES AND THEIR USE IN
RETARDING RETROGRADATION OF STARCH

Appl. No.: Unassigned

Filing Date: 09/25/2003

Examiner: Unassigned

Art Unit: 1761

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.56

Mail Stop PATENT APPLICATION
Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicants submit herewith on Form PTO/SB/08 a listing of the documents cited by or submitted to the U.S. PTO in parent application Serial No. 09/647,504, filed 02/28/2001. As provided in 37 CFR §1.98(d), copies of the documents are not being provided since they were previously submitted to the United States Patent & Trademark Office in the above-identified parent application.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b), within three (3) months of the filing date of the application.

RELEVANCE OF EACH DOCUMENT

The relevance of the listed documents is explained in the parent application.

Applicants respectfully request that any listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 CFR §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date Sept 25, 2003

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT Date Submitted: September 25, 2003 (use as many sheets as necessary)				Complete if Known		
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				Group Art Unit		1761
				Examiner Name		Unassigned
Attorney Docket Number				078883-0167		
Sheet	1	of	5			

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
	A1	5,204,254		SCHMID ET AL.	04/1993	
	A2	4,946,779		KAMEDA ET AL.	08/1990	
	A3	6,242,224	B1	NAKANO ET AL.	06/2001	

FOREIGN PATENT DOCUMENTS								
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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
	A4	EP	0 412 607	A	GIST BROCADES NV	02/13/1991		
	A5	WO	91/04669		NOVONORDISK AS	04/18/1991		
	A6	JP	6-279745		SHOWA SANGYO KK	10/1994		
	A7	JP	6-279746		SHOWA SANGYO KK	10/1994		
	A8	EP	0 298 645		KABUSHIKI KAISHA HAYASHIBARA SEIBUTSU KAGAKU KENKYUJO	01/1989		
	A9	EP	0 412 607		GIST-BROCADES NV	02/1991		
	A10	EP	0 494 233		NOVONORDISK AS	07/1992		

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	A11	MIN ET AL., "Cloning of Novel Maltooligosaccharide-Producing Amylases as Antistaling Agents for Bread," <i>Journal Agriculture Food Chemistry</i> (1998), Vol. 46, pp. 779-782.			
	A12	JAKUBCZYK et al., "Studies On The Application Of Some Amylolytic Preparations In The Production Of Wheat Bread", Scientific transactions of the Academy of Agriculture in Warsaw, Agricultural and Food Technology, Vol. 8:223-235, (1973)			
	A13	ZHOU ET AL. "Properties of the enzyme expressed by the <i>Pseudomonas saccharophila</i> maltotetrachydrolase gene (mta) . . .", <i>Car Research</i> , Vol. 223, pp. 255-261, 01/1992.			

Examiner Signature	Date Considered	
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	A14	FOGARTY, "Microbial Amylases," <i>Microbial Enzymes and Biotechnology</i> (1983), Fogarty, ed., pp. 1 - 92.			
	A15	FOGARTY ET AL., "Starch-Degrading Enzymes of Microbial Origin," <i>Progress in Industrial Microbiology</i> (1979), Bull, ed., pp. 87 - 150.			
	A16	KAINUMA ET AL, "Isolation and Action Pattern of Maltotetraose Producing amylase from <i>Aerobacter Aerogenes</i> ," <i>FEBS Letters</i> (1971), Vol. 26, No. 1, pp. 281-285.			
	A17	MONMA ET AL., "Formation and Hydrolysis of Maltotetraose by an Extracellular Exo-maltotetraohydrolase," <i>Agric. Biol. Chem.</i> (1983), Vol. 47, No. 8, pp. 1769-1774.			
	A18	KENNEDY ET AL., "Characteristics of alpha-Amylase K, a Novel Amylase from a strain of <i>Bacillus subtilis</i> ," <i>Starch/Stärke</i> (1979), Vol. 31, No. 3, pp. 93-99.			
	A19	TAKASAKI, "Production of Maltotetraose by α -amylase from <i>Bacillus circulans</i> G-6," <i>Agric. Biol. Chem.</i> (1982), Vol. 46, No. 6, pp. 1539-1547.			
	A20	TANIGUCHI ET AL., "Purification of <i>Bacillus circulans</i> F-2 Amylase and its General Properties," <i>Agric. Biol. Chem.</i> (1983), Vol. 47, No. 3, pp. 511-519.			
	A21	TANIGUCHI, "Maltotetraose-Producing Amylase of <i>Bacillus circulans</i> F-2," <i>Biotechnology of Amylodextrin Oligosaccharides</i> (1989), Friedman, ed., pp. 111-124.			
	A22	BEALIN-KELLY ET AL., "The α -amylase of the caldactive bacterium <i>Bacillus caldovelox</i> ," <i>Biochemical Society Transactions</i> (1990), Vol. 18, No. 2, pp.310-311.			
	A23	FOGARTY ET AL., "A novel maltotetraose-forming α -amylase from <i>Bacillus caldovelox</i> : patterns and mechanisms of action," <i>App. Microbiol. Biotechnol.</i> (1991), Vol. 36, pp. 184-189.			
	A24	SAITO, "A Thermophilic Extracellular α -Amylase from <i>Bacillus licheniformis</i> ," <i>Archives of Biochemistry and Biophysics</i> (1973), Vol. 155, pp. 290-298.			
	A25	OKEMOTO ET AL., "Isolation and cultivation of a novel microorganism producing a maltopentaose-forming enzyme," <i>Appl. Microbiol. Biotechnol.</i> (1986), vol. 25, pp. 137-142.			
	A26	SHIDA ET AL., "Cloning and Nucleotide Sequence of the Maltopentaose-forming Amylase Gene from <i>Pseudomonas</i> sp. KO-8940," <i>Biosci. Biotech. Biochem.</i> (1992), Vol. 56, No. 1, pp. 76-80.			
	A27	SAKANO ET AL., "Purification and Properties of an exo- α -Amylase from <i>Pseudomonas stutzeri</i> ," <i>Agric. Biol. Chem.</i> (1982), Vol. 46, No. 3, pp. 639-646.			

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	A28	TAKASAKI ET AL., "Maltotetraose-producing Amylase from <i>Bacillus</i> sp. MG-4," <i>Agric. Biol. Chem.</i> (1991), Vol. 55, No. 7, pp. 1715-1720.			
	A29	FOGARTY ET AL., "Extracellular Maltotetraose-Forming Amylase of <i>Pseudomonas</i> sp. IMD 353," <i>Biotechnology Letters</i> (1994), Vol. 16, No. 5, pp. 473-478.			
	A30	WAKO ET AL., "Purification and some Properties of a Maltotriose-producing Amylase," <i>J. Jap. Soc. Starch Sci.</i> (1979), Vol. 26, No. 3, pp. 175-181.			
	A31	TAKASAKI, "An Amylase Producing Maltotriose from <i>Bacillus subtilis</i> ," <i>Agric. Biol. Chem.</i> (1985), Vol. 49, No. 4, pp. 1091-1097.			
	A32	MCTIGUE ET AL., "The alkaline amylase of the alkalophilic <i>Bacillus</i> sp. IMD 370," <i>Enzyme and Microbial Technology</i> (1995), Vol. 17, pp. 570-573.			
	A33	HAYASHI ET AL., "Properties of new alkaline maltohexaose-forming amylases," <i>Appl. Microbiol. Biotechnol.</i> (1988), Vol. 28, pp. 281-285.			
	A34	KIM ET AL., "Purification and Characterization of a Maltotetraose-Forming Alkaline α -Amylase from an alkalophilic <i>Bacillus</i> Strain, GM8901," <i>Applied and Environmental Microbiology</i> (1995), Vol. 61, No. 8, pp. 3105-3112.			
	A35	CHANDRA ET AL., "Production of Extracellular Thermostable α -Amylase by <i>Bacillus licheniformis</i> ," <i>J. Ferment. Technol.</i> (1980), Vol. 58, No. 1, pp. 1 – 10.			
	A36	SRIVASTAVA ET AL., "Culture Conditions for Production of Thermostable Amylase by <i>Bacillus stearothermophilus</i> ," <i>Applied Environmental Microbiology</i> (1986), Vol. 52, No. 1, pp. 179-184.			
	A37	PLANCHOT ET AL., "Purification and characterization of extra cellular alpha-amylase from <i>Aspergillus fumigatus</i> ," <i>Carbohydrate Research</i> (1995), Vol. 272, pp. 97-109.			
	A38	OHNISHI ET AL., "General considerations for conditions and methods of Amylase Assay," <i>Handbook of Amylases and Related Enzymes</i> (1988), The Amylase Research Society of Japan, ed., pp. 10-14.			
	A39	LARSEN ET AL., "Purification and characterisation of cyclodextrin glycosyltransferase from <i>Paenibacillus</i> sp. F8," <i>Carbohydrate Research</i> (1998), Vol. 310, Pp. 211-219.			
	A40	BLUM ET AL., "Improved silver staining of plant proteins, RNA and DNA in polyacrylamide gels," <i>Electrophoresis</i> (1987), Vol. 8, pp. 93-99.			

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	A41	FUWA, "A new method for microdetermination of amylase activity by the use of amylose as the substrate," <i>The Journal of Biochemistry</i> (1954), Vol. 41, No. 5, pp. 583-603.	
	A42	TSUKAMOTO ET AL., "Nucleotide Sequence of the Maltohexaose-producing amylase gene from an alkalophilic <i>Bacillus</i> sp. #707 and structural similarity to liquefying type α -amylases," <i>Biochemical and Biophysical Research Communications</i> (1988), Vol. 151, No. 1, pp. 25-31.	
	A43	KAINUMA ET AL., "Purification and some properties of a novel maltohexaose-producing exo-amylase from <i>aerobacter aerogenes</i> ," <i>Biochimica et Biophysica Acta</i> (1975), Vol. 410, pp. 333-346.	
	A44	LEE, "Carbohydrate analyses with high-performance anion-exchange chromatography," <i>Journal of Chromatography</i> (1996), Vol. 720, pp. 137-149.	
	A45	AMMERAAL ET AL., "High-performance anion-exchange chromatography with pulsed amperometric detection of linear and branched glucose oligosaccharides," <i>Carbohydrate Research</i> (1991), Vol. 215, pp. 179-192.	
	A46	ZHOU ET AL., "Nucleotide sequence of the maltotetraohydrolase gene from <i>Pseudomonas saccharophila</i> ," <i>FEBS Letters</i> (1989), Vol. 255, No. 1, pp. 37-41.	
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	A48	WINTER ET AL., "Man-made antibodies," <i>Nature</i> (1991), Vol. 349, pp. 293-299.	
	A49	ORLANDI ET AL., "Cloning immunoglobulin variable domains for expression by the polymerase chain reaction," <i>Proc. Natl. Acad. Sci. USA</i> (1989), Vol. 86, pp. 3833-3837.	
	A50	TAKEDA ET AL., "Construction of chimeric processed immunoglobulin genes containing mouse variable and human constant region sequences," <i>Nature</i> (1985), Vol. 314, No. 4, pp. 452-454.	
	A51	NEUBERGER ET AL., "Recombinant antibodies possessing novel effector functions," <i>Nature</i> (1984), Vol. 312, pp. 604-608.	
	A52	MORRISON ET AL., "Chimeric human antibody molecules: Mouse antigen-binding domains with human constant region domains," <i>Proc. Natl. Acad. Sci.</i> (1984), Vol. 81, pp. 6851-6855.	

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	A53	COLE ET AL., "The EBV-Hybridoma Technique and its Application to Human Lung Cancer," <i>Monoclonal Antibodies and Cancer Therapy</i> (1985), Reisfeld et al. editor, pp.77-96.		
	A54	COTE ET AL., "Generation of human monoclonal antibodies reactive with cellular antigens," <i>Proc. Natl. Acad. Sci.</i> (1983), Vol. 80, pp. 2026-2030.		
	A55	KOZBOR ET AL., "The production of monoclonal antibodies from human lymphocytes," <i>Immunology Today</i> (1983), Vol. 4, No. 3, pp. 72-79.		
	A56	KÖHLER ET AL., "Continuous cultures of fused cells secreting antibody of predefined specificity," <i>Nature</i> (1975), Vol. 256, pp. 495-497.		

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